

Claims

WHAT IS CLAIMED IS:

1. A method for selective inhibition of COX-2 in an organism, the method comprising the step of administering to the organism a composition comprising a therapeutically or prophylactically effective amount of an organic extract of an edible plant, wherein the inhibitory effect of the extract on COX-2 activity is greater than or equal to about 2 times greater than the inhibitory effect of the extract on COX-1 activity.

2. The method of claim 1 wherein the COX-2 activity is greater than or equal to about 10 times greater than the inhibitory effect of the extract on COX-1 activity.

3. A method for inhibiting the activity of COX-2 in an organism, the method comprising the step of administering to the organism a composition comprising a therapeutically or prophylactically effective amount of an organic extract of an edible plant, wherein the plant is selected from the orders consisting of Agavales, Apocynales, Arales, Aristolochiales, Asterales, Brassicales, Cactales, Caryophyllales, Cucurbitales, Elaeagnales, Fagales, Gnetales, Graminales, Lamiales, Liliales, Malvales, Musales, Myrtales, Papaverales, Plantaginales, Polemoniales, Ranales, Rosales, Rubiales, Rutales, Scrophulariales, Umbellales, Urticales, and Violales.

4. The method of claim 3 wherein the inhibitory effect of the extract on COX-2 activity is greater than or equal to about 2 times greater than the inhibitory effect of the extract on COX-1 activity.

5. The method of claim 3 wherein the inhibitory effect of the extract on COX-2 activity is greater than or

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equal to about 10 times greater than the inhibitory effect of the extract on COX-1 activity.

6. The method of claim 3 wherein the organic extract of the Agavales order is selected from the plant family
5 Agavaceae.

7. The method of claim 6 wherein the organic extract of the Agavaceae family is from the genus Yucca.

8. The method of claim 3 wherein the organic extract of the Apocynales order is selected from the plant family
10 Asclepiadaceae.

9. The method of claim 8 wherein the organic extract of the Asclepiadaceae family is from the genus Asclepias.

10. The method of claim 3 wherein the organic extract of the Arales order is selected from the plant family
15 Araceae.

11. The method of claim 10 wherein the organic extract of the Araceae family is selected from the genera consisting of Acorus, Colocasia, and Xanthosoma.

12. The method of claim 3 wherein the organic extract
20 of the Aristolochiales order is selected from the plant family Aristolochiaceae.

13. The method of claim 12 wherein the organic extract of the Aristolochiaceae family is from the genus Aristolochia.

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14. The method of claim 3 wherein the organic extract of the Asterales order is selected from the plant family Asteraceae.

5 15. The method of claim 14 wherein the organic extract of the Asteraceae family is selected from the genera consisting of Artemisia, Aster, Blumea, Cichorium, Crassocephallum, Silybum, Sonchus, and Taraxacum.

10 16. The method of claim 3 wherein the organic extract of the Brassicales order is selected from the plant family Brassicaceae.

17. The method of claim 16 wherein the organic extract of the Brassicaceae family is selected from the genera consisting of Brassica and Capsella.

15 18. The method of claim 3 wherein the organic extract of the Cactales order is selected from the plant family Cactaceae.

19. The method of claim 18 wherein the organic extract of the Cactaceae family is from the genus Hylocereus.

20 20. The method of claim 3 wherein the organic extract of the Caryophyllales order is selected from the plant families consisting of Amaranthaceae, Caryophyllaceae, Phytolaccaceae and Polygonaceae.

25 21. The method of claim 20 wherein the organic extract of the Amaranthaceae family is from the genus Alternanthera.

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22. The method of claim 20 wherein the organic extract of the Caryophyllaceae family is from the genus *Stellaria*.

5 23. The method of claim 20 wherein the organic extract of the Phytolaccaceae family is from the genus *Phytolacca*.

24. The method of claim 20 wherein the organic extract of the Polygonaceae family is selected from the genera consisting of *Polygonum* and *Rumex*.

10 25. The method of claim 3 wherein the organic extract of the Cucurbitales order is selected from the plant family Cucurbitaceae.

15 26. The method of claim 25 wherein the organic extract of the Cucurbitaceae family is selected from the genera consisting of *Citrullus* and *Mukia*.

27. The method of claim 3 wherein the organic extract of the Eleagnales order is selected from the plant family Elaeagnaceae.

20 28. The method of claim 27 wherein the organic extract of the Elaeagnaceae family is selected from the genus consisting of *Elaeagnus*.

29. The method of claim 3 wherein the organic extract of the Fagales order is selected from the plant family Fagaceae.

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30. The method of claim 29 wherein the organic extract of the Fagaceae family is selected from the genus consisting of Castanea.

5 31. The method of claim 3 wherein the organic extract of the Gnetales order is selected from the plant family Ginkgoaceae.

32. The method of claim 31 wherein the organic extract of the Ginkgoaceae family is from the genus Ginkgo.

10 33. The method of claim 3 wherein the organic extract of the Graminales order is selected from the plant family Poaceae.

15 34. The method of claim 33 wherein the organic extract of the Poaceae family is selected from the genera consisting of Coix, Eleusine, Hordeum, Oryza, and Zea.

35. The method of claim 3 wherein the organic extract of the Lamiales order is selected from the plant families Lamiaceae and Verbenaceae.

20 36. The method of claim 35 wherein the organic extract of the Lamiaceae family is selected from the genera consisting of Lycopus, Ocimum, Perilla, Prunella and Salvia.

25 37. The method of claim 35 wherein the organic extract of the Verbenaceae family is selected from the genus consisting of Vitex.

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38. The method of claim 3 wherein the organic extract of the Liliales order is selected from the plant families consisting of Dioscoreaceae and Liliaceae.

5 39. The method of claim 38 wherein the organic extract of the Dioscoreaceae family is from the genus Dioscorea.

40. The method of claim 38 wherein the organic extract of the Liliaceae family is selected from the genera consisting of Allium, Lilium, Smilax, and Trillium.

10 41. The method of claim 3 wherein the organic extract of the Malvales order is selected from the plant family Malvaceae and Sterculiaceae.

42. The method of claim 41 wherein the organic extract of the Malvaceae family is from the genus Abutilon.

15 43. The method of claim 41 wherein the organic extract of the Sterculiaceae family is from the genus Sterculia.

44. The method of claim 3 wherein the organic extract of the Musales order is selected from the plant families consisting of Marantaceae and Musaceae.

20 45. The method of claim 44 wherein the organic extract of the Marantaceae family is from the genus Maranta.

46. The method of claim 44 wherein the organic extract of the Musaceae family is from the genus Musa.

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47. The method of claim 3 wherein the organic extract of the Myrtales order is selected from the plant families consisting of Balanphoraceae and Onagraceae.

5 48. The method of claim 47 wherein the organic extract of the Balanphoraceae family is from the genus Cynomorium.

49. The method of claim 47 wherein the organic extract of the Onagraceae family is from the genus Oenothera.

10 50. The method of claim 3 wherein the organic extract of the Papaverales order is selected from the plant families consisting of Capparidaceae and Papaveraceae.

51. The method of claim 50 wherein the organic extract of the Capparidaceae family is from the genus Capparis.

52. The method of claim 50 wherein the organic extract of the Papaveraceae family is from the genus Papaver.

15 53. The method of claim 3 wherein the organic extract of the Plantaginales order is selected from the plant family Plantaginaceae.

54. The method of claim 53 wherein the organic extract of the Plantaginaceae family is from the genus Plantago.

20 55. The method of claim 3 wherein the organic extract of the Polemoniales order is selected from the plant families consisting of Boraginaceae, Convolvulaceae, and Solanaceae.

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56. The method of claim 55 wherein the organic extract of the Boraginaceae family is from the genus Cordia.

57. The method of claim 55 wherein the organic extract of the Convolvulaceae family is from the genus Ipomoea.

5 58. The method of claim 55 wherein the organic extract of the Solanaceae family is selected from the genera consisting of Capsicum and Solanum.

10 59. The method of claim 3 wherein the organic extract of the Ranales order is selected from the plant family Menispermaceae.

60. The method of claim 59 wherein the organic extract of the Menispermaceae family is from the genus Cissampelos.

15 61. The method of claim 3 wherein the organic extract of the Rosales order is selected from the plant family Fabaceae.

62. The method of claim 61 wherein the organic extract of the Fabaceae family is selected from the genera consisting of Acacia, Albizzia, Glycine, Phaseolus, Trigonella, and Vigna.

20 63. The method of claim 3 wherein the organic extract of the Rubiales order is selected from the plant families consisting of Rubiaceae and Valerianaceae.

64. The method of claim 63 wherein the organic extract of the Rubiaceae family is from the genus Asperula.

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65. The method of claim 63 wherein the organic extract of the Valerianaceae family is from the genus Valeriana.

5 66. The method of claim 3 wherein the organic extract of the Rutales order is selected from the plant family Rutaceae.

67. The method of claim 66 wherein the organic extract of the Rutaceae family is from the genus Citrus.

10 68. The method of claim 3 wherein the organic extract of the Scrophulariales order is selected from the plant family Acanthaceae.

69. The method of claim 68 wherein the organic extract of the Acanthaceae family is from the genus Acanthus.

15 70. The method of claim 3 wherein the organic extract of the Umbellales order is selected from the plant family Apiaceae.

71. The method of claim 70 wherein the organic extract of the Apiaceae family is selected from the genera consisting of Angelica, Carum, Centella, Eryngium, and Peucedanum.

20 72. The method of claim 3 wherein the organic extract of the Urticales order is selected from the plant families consisting of Moraceae and Ulmaceae.

73. The method of claim 72 wherein the organic extract of the Moraceae family is from the genus Morus.

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74. The method of claim 72 wherein the organic extract of the Ulmaceae family is from the genus Ulmus.

75. The method of claim 3 wherein the organic extract of the Vioales order is selected from the plant families
5 Flacourtiaceae and Passifloraceae.

76. The method of claim 75 wherein the organic extract of the Flacourtiaceae family is from the genus Pangium.

77. The method of claim 75 wherein the organic extract of the Passifloraceae family is from the genus Passiflora.

10 78. The method of claim 1 wherein the organic extract is a purified composition obtained by a method comprising:

(a) contacting the plant with an organic solvent to remove an extract from the plant wherein the extract inhibits COX-2 activity; and

15 (b) isolating the extract with COX-2 inhibitory activity.

79. The method of claim 78 wherein the extract selectively inhibits COX-2 activity.

20 80. The method of claim 78 wherein step (a) further comprises mixing the plant with the organic solvent and stirring the resulting mixture at a temperature between about 25° C and the boiling point of said solvent for at least one minute.

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81. The method of claim 78 wherein the organic solvent is selected from the group consisting of hydrocarbon solvents, ethers, chlorinated solvents, acetone, ethyl

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acetate, butanol, ethanol, methanol, isopropyl alcohol and mixtures thereof.

82. The method of claim 81 wherein the organic solvent is non-polar.

5 83. The method of claim 82 wherein the non-polar organic solvent is dichloromethane or hexane.

84. The method of claim 78 wherein step (b) further comprises separating the solvent from the organic extract by evaporating the solvent.

10 85. A method of treating or preventing COX-2 mediated inflammation or an inflammation-associated disorder in an organism, the method comprising administering to the organism a composition comprising a therapeutically or prophylactically effective amount of the purified composition according to claim 78.

86. The method of claim 85 wherein the inflammation-associated disorder is arthritis.

87. The method of claim 85 wherein the inflammation-associated disorder is pain.

20 88. The method of claim 85 wherein the inflammation-associated disorder is fever.

89. The method of claim 85 for use in the treatment or prevention of cancer.

90. The method of claim 89 wherein the cancer is epithelial cell cancer.

91. The method of claim 90 wherein the epithelial cell cancer is colon, breast, prostate, bladder, or lung cancer.

5 92. The method of claim 85 for use in the treatment or prevention of central nervous system disorders.

93. The method of claim 92 wherein the central nervous system disorder is Alzheimer's Disease.

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